

AMENDMENT

In the Claims:

Please amend the claims as indicated below.

Claims 1-58 (Cancelled).

59. (Previously presented) An article comprising a polysiloxane rubber substrate having a surface coated with a coating wherein the coating comprises a copolymer that is the reaction product of molecules comprising:

i) one or more molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate;

ii) one or more organo-functional silanes having at least two functional groups that are reactive with an isocyanate group and at least one functional group reactive with a silicone rubber substrate; and,

iii) one or more polyisocyanates.

60. (Previously presented) The article of Claim 59, wherein the article is a medical device.

61. (Previously presented) The article of Claim 59, wherein the article is a catheter.

62. (Previously presented) An article according to Claim 59, wherein the one or more organo-functional silanes comprise an amino-functional alkoxysilane.

63. (Previously presented) The article of Claim 62, wherein the amino-alkoxy silane is N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane.

64. (Previously presented) The article of Claim 59, wherein the one or more molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanates comprise a diol.

65. (Previously presented) The article of Claim 64, wherein the diol is a polyethylene adipate, a polydiethyleneglycol adipate, a polycaprolactone diol, a polycaprolactone-polyadipate copolymer diol, a polyethylene-terephthalate diol, a polycarbonate diol, a polytetramethylene ether glycol, a polyethylene glycol, an ethylene oxide adduct of a polyoxypropylene diol or an ethylene oxide adduct of a polyoxypropylene triol.

66. (Currently amended) The article of Claim 65, wherein the polyethylene glycol has a weight average molecular weight of about 1450.

67. (Currently amended) The article of Claim 65, wherein the polyethylene glycol has a weight average molecular weight of about 8000.

68. (Previously presented) The article of Claim 59, wherein the one or more polyisocyanates comprise a diisocyanate.

69. (Previously presented) The article of Claim 59, wherein the one or more polyisocyanates comprise 4,4'-diphenylmethane diisocyanate or a position isomer thereof, 2,4- or 2,6-toluene diisocyanate (TDI) or a position isomer thereof, 3,4-dichlorophenyl diisocyanate, dicyclohexylmethane-4,4'-diisocyanate (HMDI), 4,4'-diphenylmethane diisocyanate (MDI), 1,6-

hexamethylene diisocyanate (HDI) or a position isomer thereof, isophorone diisocyanate (IPDI) or an adduct of a diisocyanate.

70. (Previously presented) The article of to Claim 68, wherein the diisocyanate is dicyclohexylmethane-4,4'-diisocyanate (HMDI).

71. (Previously presented) The article of Claim 59, wherein the silane copolymer is a polyurethane-urea-silane copolymer.

72. (Previously presented) The article of Claim 59, wherein 7-12% by weight of the copolymer is the silane based upon the weight of the entire copolymer.

73. (Previously presented) The article of Claim 59, wherein the coating further comprises a hydrophilic polymer.

74. (Previously presented) The article of Claim 73, wherein the hydrophilic polymer is a polysaccharide, hyaluronic acid or a salt or a derivative thereof, sodium alginate, chondroitin sulfate, a cellulose, chitin, chitosan, agarose, a xanthan, dermatan sulfate, keratin sulfate, emulsan, gellan, curdlan, amylose, carrageenan, amylopectin, a dextran, glycogen, starch, heparin sulfate, a limit dextrin or a fragment thereof or a synthetic hydrophilic polymer.

75. (Previously presented) The article of Claim 73, wherein the hydrophilic polymer is polyethylene oxide (PEO), polyethylene glycol (PEG), poly(vinyl alcohol) or poly(N-vinyl) pyrrolidone (PVP).

76. (Currently amended) The article of Claim 59, wherein the one or more polyisocyanates comprise dicyclohexylmethane-4,4'-diisocyanate (HMDI), the one or more organo-functional silanes comprise N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane, and the molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate comprise a polyethylene glycol having a weight average molecular weight of about 1450.

77. (Previously presented) The article of Claim 59, wherein the coating comprises a primer coat and a top coat wherein:

the primer coat comprises the copolymer and

the primer coat is located between the surface and the top coat.

78. (Previously presented) The article of Claim 77, wherein the top coat comprises polyethylene oxide and a reactive mixture of a polyfunctional isocyanate and a polyol.

79. (Previously presented) The article of Claim 77, wherein the top coat comprises polyvinyl pyrrolidone and a reactive mixture of a polyfunctional isocyanate and a polyol.

80. (Previously presented) The article of Claim 77, wherein the top coat is formed by reacting:

(i) one or more polyisocyanates,

(ii) one or more organo-functional silanes having at least two functional groups, which may be the same or different and which are reactive with an isocyanate group, and

at least one functional group reactive with a silicone rubber substrate, and

(iii) a polyethylene glycol.

81. (Currently amended) The article of Claim 80, wherein the polyethylene glycol used to form the top coat has a weight average molecular weight of about 8000.

82. (Previously presented) The article of Claim 59, wherein the coating has a coefficient of friction when wet of between 0.01 and 0.2.

83. (Previously presented) The article of Claim 59, wherein the coating has a coefficient of friction when wet of between 0.01 and 0.12.

84. (Previously presented) The article of Claim 59, wherein the coating has a coefficient of friction when wet of between 0.01 and 0.06.

85. (Previously presented) The article of Claim 59, wherein the molecule having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group, has at least two amino functional groups.

86. (Previously presented) A silane copolymer that is the reaction product of molecules consisting essentially of:

i) a polymer having at least two functional groups, which may be the same or different, that are reactive with isocyanate;

ii) one or more organo-functional silanes having at least two functional groups

that are reactive with an isocyanate group and at least one functional group that is reactive with a silicone rubber substrate; and,

iii) one or more polyisocyanates.

87. (Previously presented) The silane copolymer of Claim 86, wherein the one or more organo-functional silanes comprise an amino-functional alkoxysilane.

88 (Previously presented) The silane copolymer of Claim 87, wherein the amino-alkoxy silane is N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane.

89. (Previously presented) The silane copolymer of Claim 86, wherein the polymer having at least two functional groups, which may be the same or different, that are reactive with isocyanates is a diol.

90. (Previously presented) The silane copolymer of Claim 89, wherein the diol is a polyethylene adipate, a polydiethyleneglycol adipate, a polycaprolactone diol, a polycaprolactone-polyadipate copolymer diol, a polyethylene-terephthalate diol, a polycarbonate diol, a polytetramethylene ether glycol, a polyethylene glycol, an ethylene oxide adduct of a polyoxypropylene diol or an ethylene oxide adduct of a polyoxypropylene triol.

91. (Previously presented) The silane copolymer of Claim 89, wherein the diol is a polyethylene glycol.

92. (Currently amended) The silane copolymer of Claim 91, wherein the polyethylene glycol has a weight average molecular weight of about 1450.

93. (Currently amended) The silane copolymer of Claim 91, wherein the polyethylene glycol has a weight average molecular weight of about 8000.

94. (Previously presented) The silane copolymer of Claim 86, wherein the one or more polyisocyanates comprise a diisocyanate.

95. (Previously presented) The silane copolymer of Claim 86, wherein the one or more polyisocyanates comprise 4,4'-diphenylmethane diisocyanate or a position isomer thereof, 2,4- or 2,6-toluene diisocyanate (TDI) or a position isomer thereof, 3,4-dichlorophenyl diisocyanate, dicyclohexylmethane-4,4'-diisocyanate (HMDI), 4,4'-diphenylmethane diisocyanate (MDI), 1,6-hexamethylene diisocyanate (HDI) or a position isomer thereof, isophorone diisocyanate (IPDI) or an adduct of a diisocyanate.

96. (Previously presented) The silane copolymer of Claim 86, wherein the diisocyanate is dicyclohexylmethane-4,4'-diisocyanate (HMDI).

97. (Previously presented) The silane copolymer of Claim 86, wherein the silane copolymer is a polyurethane-urea-silane copolymer.

98. (Previously presented) The silane copolymer of Claim 86, wherein 7-12% by weight of the copolymer is the silane based upon the weight of the entire copolymer.

99. (Currently amended) The silane copolymer of Claim 86, wherein the one or more polyisocyanates comprise dicyclohexylmethane-4,4'-diisocyanate (HMDI), the organo-functional silanes comprise N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane, and the molecule

having at least two functional groups, which may be the same or different, that are reactive with isocyanate is a polyethylene glycol having a weight average molecular weight of about 1450.

100. (Previously presented) The silane copolymer of Claim 86, wherein the polymer has a coefficient of friction when wet of between 0.01 and 0.2.

101. (Previously presented) The silane copolymer of Claim 86, wherein the polymer has a coefficient of friction when wet of between 0.01 and 0.12.

102. (Previously presented) The silane copolymer of Claim 86, wherein the polymer has a coefficient of friction when wet of between 0.01 and 0.06.

103. (Previously presented) The silane copolymer of Claim 86, wherein the molecule having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group, has at least two amino functional groups.

104. (Previously presented) A process comprising reacting molecules with each other to form a polymer, wherein the molecules consist essentially of:

one or more polyisocyanates;

a polymer having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group; and,

one or more organo-functional silanes having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group, and having at least one functional group reactive with a silicone rubber substrate.

105. (Previously presented) The process of Claim 104, further comprising combining the molecules with a solvent.

106. (Previously presented) The process of Claim 104, further comprising the addition of a catalyst that is catalytic for the reaction between an isocyanate and a molecule having at least two functional groups, which may be the same or different, that are reactive with isocyanate.

107. (Previously presented) The process of Claim 106, wherein the catalyst is selected from the group consisting of N,N-dimethylaminoethanol, N,N-dimethyl-cyclohexamine-bis(2-dimethyl aminoethyl) ether, N-ethylmorpholine, N,N,N',N',N''-pentamethyl-diethylene-triamine, 1-2(hydroxypropyl) imidazole, stannous octoate, dibutyl tin dilaurate, dioctyltin dilaurate, dibutyl tin mercaptide, ferric acetylacetonate, lead octoate, and dibutyl tin diricinoleate.

108. (Previously presented) The process of Claim 104, wherein the molecules having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group comprise a diol.

109. (Previously presented) The process of Claim 104, wherein the molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate is a poly(ethylene adipate), a poly(diethyleneglycol adipate), a polycaprolactone diol, a polycaprolactone-polyadipate copolymer diol, a poly(ethylene-terephthalate)diol, a polycarbonate diol, a polytetramethylene ether glycol, a polyethylene glycol, an ethylene oxide adduct of polyoxypropylene diol, or an ethylene oxide adduct of polyoxypropylene triol.

110. (Previously presented) The process of Claim 108, wherein the diol is a polyethylene glycol.

111. (Currently amended) The process of Claim 110, wherein the polyethylene glycol has a weight average molecular weight of approximately 1450.

112. (Currently amended) The process of Claim 110, wherein the polyethylene glycol has a weight average molecular weight of approximately 8000.

113. (Previously presented) The process of Claim 104, wherein the one or more polyisocyanates comprise a diisocyanate.

114. (Previously presented) The process of Claim 113, wherein the diisocyanate is selected from 4,4'-diphenylmethane diisocyanate and position isomers thereof, 2,4- and 2,6-toluene diisocyanate (TDI) and position isomers thereof, 3,4-dichlorophenyl diisocyanate, dicyclohexylmethane-4,4'-diisocyanate (HMDI), 4,4'-diphenylmethane diisocyanate (MDI), 1,6-hexamethylene diisocyanate (HDI) and position isomers thereof, isophorone diisocyanate (IPDI), and adducts of diisocyanates.

115. (Previously presented) The process of Claim 113, wherein the diisocyanate is dicyclohexylmethane-4,4'-diisocyanate (HMDI).

116. (Previously presented) The process of Claim 104, wherein the one or more organo-functional silanes comprise an amino-functional alkoxysilane.

117. (Previously presented) The process of Claim 116, wherein the amino-functional alkoxysilane is N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane.

118. (Previously presented) The process of Claim 104, wherein the molecule having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group has at least two amine functional groups.

119. (Previously presented) The process of Claim 104, wherein reacting molecules with each other to form a polymer comprises:

(a) reacting the molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate with an excess of the one or more polyisocyanates in the presence of a catalyst to form a polyurethane-urea prepolymer having terminal isocyanate groups; and

(b) reacting the prepolymer formed in (a) with one or more organo-functional silanes having at least two functional groups, which may be the same or different, that are reactive with the isocyanate groups on the polyurethane-urea prepolymer and having at least one functional group reactive with a silicone rubber substrate to form a silane copolymer.

120. (Previously presented) The process of Claim 119 wherein (b) occurs in the presence of a solvent.

121. (Previously presented) The process of claim 104, wherein reacting molecules with each other to form a polymer comprises:

(a) reacting the one or more organo-functional silanes having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group and having at least one functional group reactive with a silicone rubber substrate with an excess of the one or more polyisocyanates to form a polyurea prepolymer having terminal isocyanate groups; and,

(b) reacting the polyurea prepolymer formed in (a) with the one or more molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate in the presence of a catalyst to form the silane copolymer.

122. (Previously presented) The process of Claim 121, wherein step (a) occurs in the presence of a solvent.

123. (Previously presented) The process of Claim 119, wherein the process further comprises stabilizing the copolymer formed in (b) by treating the copolymer with an alcohol.

124. (Previously presented) The process of Claim 121, wherein the process further comprises stabilizing the copolymer formed in (b) by treating the copolymer with an alcohol.

125. (Previously presented) A coating comprising a silane copolymer wherein the copolymer is the reaction product of:

i) one or more molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate;

ii) one or more organo-functional silanes having at least two functional groups that are reactive with an isocyanate group and at least one functional group reactive with a silicone rubber substrate; and,

iii) one or more polyisocyanates.

126. (Previously presented) The coating of Claim 125, wherein the coating comprises:

a primer coat comprising the silane copolymer; and,

a top coat that overlays at least a portion of the primer coat.

127. (Previously presented) The coating of Claim 126, wherein the top coat is the combination of a polyethylene oxide and a reactive mixture of polyfunctional isocyanate and polyol.

128. (Previously presented) The coating of Claim 126, wherein the top coat is the reaction product of molecules comprising:

one or more polyisocyanates;

one or more organo-functional silanes having at least two functional groups, which may be the same or different, that are reactive with isocyanate and at least one functional group reactive with a silicone rubber substrate; and

one or more polyethylene glycols.

129. (Previously presented) The coating of Claim 125, wherein the coating has a coefficient of friction when wet of between 0.01 and 0.2.

130. (Previously presented) The coating of Claim 125, wherein the coating has a coefficient of friction when wet of between 0.01 and 0.12.

131. (Previously presented) The coating of Claim 125, wherein the coating has a coefficient of friction when wet of between 0.01 and 0.06.

132. (Previously presented) The coating of Claim 125, wherein the molecule having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group, has at least two amino functional groups.

133. (Previously presented) The coating of Claim 125, wherein the molecules having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group comprise a diol.

134. (Previously presented) The coating of Claim 125, wherein the molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate are selected from a poly(ethylene adipate), a poly(diethyleneglycol adipate), a polycaprolactone diol, a polycaprolactone-polyadipate copolymer diol, a poly(ethylene-terephthalate)diol, a polycarbonate diol, a polytetramethylene ether glycol, a polyethylene glycol, an ethylene oxide adduct of polyoxypropylene diol, or an ethylene oxide adduct of polyoxypropylene triol.

135. (Previously presented) The coating of Claim 133 wherein the diol is a polyethylene glycol.

136. (Currently amended) The coating of Claim 135, wherein the polyethylene glycol has a weight average molecular weight of approximately 1450.

137. (Currently amended) The coating of Claim 135, wherein the polyethylene glycol has a weight average molecular weight of approximately 8000.

138. (Previously presented) The coating of Claim 125, wherein the one or more polyisocyanates comprise a diisocyanate.

139. (Previously presented) The coating of Claim 138, wherein the diisocyanate is selected from 4,4'-diphenylmethane diisocyanate and position isomers thereof, 2,4- and 2,6-

toluene diisocyanate (TDI) and position isomers thereof, 3,4-dichlorophenyl diisocyanate, dicyclohexylmethane-4,4'-diisocyanate (HMDI), 4,4'-diphenylmethane diisocyanate (MDI), 1,6-hexamethylene diisocyanate (HDI) and position isomers thereof, isophorone diisocyanate (IPDI), and adducts of diisocyanates.

140. (Previously presented) The coating of Claim 138, wherein the diisocyanate is dicyclohexylmethane-4,4'-diisocyanate (HMDI).

141. (Previously presented) The coating of Claim 125, wherein the one or more organo-functional silanes comprise an amino-functional alkoxysilane.

142. (Previously presented) The coating of Claim 141, wherein the amino-functional alkoxysilane is N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane.

143. (Currently amended) The coating of Claim 125, wherein the one or more polyisocyanates comprise dicyclohexylmethane-4,4'-diisocyanate (HMDI), the organo-functional silanes comprise N-(2-aminoethyl)-3-aminopropyl-methyldimethoxy silane, and the molecules having at least two functional groups, which may be the same or different, that are reactive with isocyanate is a polyethylene glycol having a weight average molecular weight of approximately 1450.

144. (Previously presented) The coating of Claim 125, wherein the molecule having at least two functional groups, which may be the same or different, that are reactive with an isocyanate functional group has at least two amine functional groups.

145. (Previously presented) The coating of Claim 125, wherein the coating further comprises a hydrophilic polymer.

146. (Previously presented) The coating of Claim 145, wherein the hydrophilic polymer is a polysaccharide, hyaluronic acid or a salt or a derivative thereof, sodium alginate, chondroitin sulfate, a cellulose, chitin, chitosan, agarose, a xanthan, dermatan sulfate, keratin sulfate, emulsan, gellan, curdlan, amylose, carrageenan, amylopectin, a dextran, glycogen, starch, heparin sulfate, a limit dextrin or a fragment thereof or a synthetic hydrophilic polymer.

147. (Previously presented) The coating of Claim 145, wherein the hydrophilic polymer is polyethylene oxide (PEO), polyethylene glycol (PEG), poly(vinyl alcohol) or poly(N-vinyl) pyrrolidone (PVP).

148. (Previously presented) The coating of Claim 126, wherein the top coat comprises polyvinyl pyrrolidone and a reactive mixture of a polyfunctional isocyanate and a polyol.

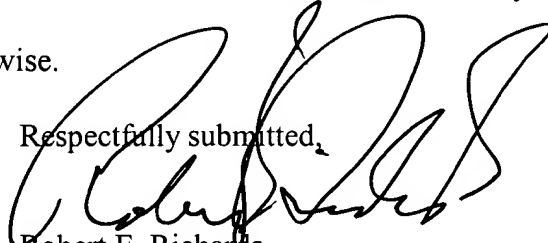
149. (Currently amended) The coating of Claim 128, wherein the polyethylene glycol used to form the top coat has a weight average molecular weight of about 8000.

Response to Notice of Non-Compliant Amendment
Serial No.: 09/887,680

Conclusion:

Applicants respectfully request reconsideration of the present application in view of the foregoing amendment. Applicants submit that all claims are in condition for allowance. Such action is courteously solicited. Applicants further request that the Examiner call the undersigned counsel if allowance of the claims can be facilitated by examiner's amendment, telephone interview or otherwise.

Respectfully submitted,



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